The Brewster Mill Sites

IN

Brewster, on Cape Cod

THE BREWSTER MILL SITES COMMITTEE

BREWSTER, MASSACHUSETTS

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Unsigned articles are by three members of the Brewster Mill Sites Committee: Nettie C. Lewis, Priscilla Nickerson Lawrence, and Lucy H. Chapman.

THE GEOLOGY OF THE OLD MILL AREA

The hills of West Brewster are part of the terminal moraine of the Cape Cod glacier. There were several advances and recessions of the ice flood that crept down from the north many thousands of years ago and our hills from Sandwich to Orleans were piled up by the last one, with its sandy outwash plain spreading off to the south toward Nantucket Sound.

A previous glacier had advanced as far as Nantucket and Martha's Vineyard and as it melted back had left a trail of immense cakes of ice. Rock debris from the Cape Cod glacier filled in around and spread over these cakes. When finally all ice melted, hollows remained and those which extend below the ground water level are now lakes and ponds. The geologist calls them "kettles". The Mill Ponds of Brewster are glacial "kettles".

Many of the ponds of the Cape are in completely enclosed depressions, with neither inlet nor outlet. The Kettle or Lower Mill Pond, however, happens to have a notch in its north rim, just upstream a few hundred feet from the Old Mill. Through this outlet Stoney Brook now flows in a northerly direction toward Cape Cod Bay. Through this notch at least some of the melted water from the mill pond's ice cakes drained, as the climate became warmer and the glacier receded to the north. This was the beginning of Stoney Brook.

At first the front of the glacier, an ice cliff probably several hundred feet high, formed a dam across Cape Cod Bay and a lake formed between the dam and the Brewster Hills. Geologists have called it Lake Shaler.

Stoney Brook flowed into this lake.

As the dam worked back to the north, however, the lake disappeared and in time the ocean water began to rise in Cape Cod Bay. Then Stoney Brook began its present journey to the sea.

The brook has undoubtedly deepened its course somewhat, creating falls, and bringing out in relief the large boulders of the moraine, thus adding to the natural beauty of the area. The fall from pond to sea is about twenty-six feet, which was quite enough to have powered the mills of "Factory Village".

R. E. Somers

HISTORY OF THE DEVELOPMENT OF POWER & INDUSTRIES IN THE AREA

The History of the Mill Sites reaches back more than 300 years to 1661, when in the June session of the Colony Court, Thomas Prence was given permission to purchase land from the Indians.

In 1663 he purchased this land which included Saquatucket Brook (now called Stoney Brook) and on this brook he built a water-powered grist mill. In 1677 his heir, William Griffith, sold the mill to Thomas Clark of Plymouth. Later it passed on to Thomas' son Andrew and then to his grandson Thomas. Scottow Clark, another grandson, was the miller. It remained in the Clark family for many years.

A short time after the grist mill was built, Kenelm Winslow, his son Junior, John Dillingham, his son Junior, and Joseph Wing built a fulling mill, utilizing the same water power as the grist mill. In 1699 the other owners transferred their rights to Kenelm Winslow Junior, on condition he keep the mill in working order so that the home-made loosely woven cloth could be fulled.

The fulling process consisted of beating the cloth with paddles and compressing it in water. During this operation the cloth became close, firm, thick and smooth. Fullers Earth, a clay imported from England, was used to remove any oil still in the cloth. When this became to expensive, the bruised leaves of Soapwort (better known as Bouncing Bet) were used. This grows in abundance on the Cape.

Cloth had to be made before taking it to Mr. Winslow's fulling mill to be fulled. Making cloth required long tedious labor. First the raising of sheep, then shearing the sheep for the wool, then combing and washing the wool, then carding it into rools (a tedious task,) then spinning the rolls into yarn, dying the yarn and finally weaving the yarn into cloth.

Now with two mills running by water power on the brook, there was frequent shortage of water at the grist mill. This caused friction between the owners of the mills. Mr. Clark and his son-in-law, John Gray, on one side and the owner of the fulling mill, Mr. Winslow on the other side. The owner of the grist mill complained and asked the town to appoint a committee who would induce Mr. Winslow to let the water remain until there was enough for both mills.

In 1760 the old fulling mill burned and with it valuable homespun cloth.

In 1814 members of the Winslow family had a woolen mill where the fulling mill had been. This mill is said to have produced the first factory-made woolen cloth in America. Later cotton goods were manufactured there. Still later it was converted into a carding mill.

This carding mill consisted of a set of cards run by water power, converting wool (already washed and combed) into rolls ready for spinning. This saved the housewives and their daughters the long tedious work of hand carding.

About 1830 William Winslow, a tanner, built a third structure on the brook, a tannery. Hemlock bark was brought by boat from Maine and used for the tanning of leather made from the hides of animals raised locally. This not only provided a market for such hides, but supplied leather for Cape Cod cobblers.

These mills or factories made a great change in the communities, saving the people much time and labor.

Mr. Seth Sears gave this interesting account of his visit to the grist mill and tannery..."As a boy of 8 or 10 years (1870), I well remember that my father (in the adjoining village of East Dennis two miles from the mill) would send me with a load of corn to have ground. I would guide the horse over the road and on reaching the mill, the miller would lead the horse down to the mill and unload the corn while I watched the millstones give up the meal, or I would go to the adjacent tannery and stand upon my toes to look into the large vats in which the hides were soaking in the Hemlock bark mixture. It was most interesting to me as a youngster. If the miller had not arrived at the mill, I would soon see him plodding down the stone steps." The stone steps are still visible on the hill.

The grist mill and the tannery were both burned in 1871.

About 1873 a new grist mill was built by Mr. Bartlett Winslow and T. D. Sears on the foundation of the old fulling and woolen mills. Later it was owned by J. Howard Winslow. This is the present structure known as "The Old Mill".

During the late 1800's and into this century, the mill has had various uses. Mr. Hudson Ellis (the past miller) states that his father, Mr. Benjamin Ellis, was the last miller to grind there regularly.

A metal turbine was installed in the 1880's which was an improvement over the water wheel. The water wheel in winter sometimes became locked with solid ice, or ice formed on the paddles

making it useless. The turbine rested under the water where ice could not get at it, and as the mill pond was limited in its volume of water, the turbine was situated where there would always be some water in the pond to turn it.

This turbine was used to run a factory for making overalls. Still later it was used for the manufacture of ice cream. Then for some years the mill became a family dwelling. Naturally there were many changes made during this time.

On April 15th, 1940, the town purchased the mill and mill sites and opened them to the public.

During the summer corn is ground downstairs and upstairs is a small museum. In the museum are articles dating back to early days and given to the museum by the townspeople.

The mill is open only in the summer, but the grounds may be visited any season of the year, and each season has its own beauty for the visitor to enjoy.

References:

History of Harwich, by John Paine.

The New England Village Mills, by Edward P. Hamilton

Homespun Handcrafts, by Ella S. Bowles

Two Men on a Mill, by A. Harold Castonguay

Historical Sketches of the Towns and Cities of Plymouth and Barnstable Counties, by Dean Dudley

THE HERRING RUN

One great interest to visitors at the Mill Sites is the Herring Run. Every spring large numbers of alewives, commonly called herring, swim upstream in Stoney Brook to leave their spawn to hatch in the Mill Ponds. Many barrels of these herring are caught each year, but many more are allowed to reach their destination.

Records of the herring catch in the past are incomplete, but figures we have are interesting. In 1764 it was estimated that 1200 barrels of herring were taken and sent to market. This was a record catch for a season, but in 1765, 200 barrels were reported taken in one day. Following this the people of the town decided that to prevent the destruction of the herring, laws regulating the catch should be made. In 1788 such an act was passed, and at the annual town meeting following an alewife or herring committee was chosen. The first committee consisted of Kimball Clark, Nathan Winslow, Maj. William Gage, Ebenezer Snow, Bejamin Hall, Benjamin Bangs, and John Freeman. They were given authority to regulate the taking of herring in brooks, streams, and rivers in the town. At the present time an alewife committee of three members, elected annually along with other town officers, makes and enforces regulations governing the taking of alewives. The fish may be taken only at stated times, and the privilege of taking them in commercial quantities is let by bid; the proceeds of the sale go to the treasury of the town of Brewster.

The Brewster Herring Run has recently been the subject of a well-received book by a Brewster resident. By permission of the publishers and author we reprint below parts of the first, second, sixteenth and seventeenth chapters.

"It was in March...that I started looking for Alewives. This is the time of year when a few fore-runners usually come in from the sea, in spite of the cold airs and waters that still grip the narrow land of Cape Cod.

The place I started from was the Herring Run in the town of Brewster, part of a little migratory inland route by which the Alewives travel up from Cape Cod Bay to the inland ponds where they spawn. At the Herring Run the waters of Stoney Brook pour down from an inlet north of these ponds - three of them, all interconnected: Walker's, Upper Mill, and Lower Mill. The flow then goes over a one-and-a-half mile stretch, first over the fishway, a series of concrete ladders and resting pools built through rocks and high land, the area of the Herring Run then through a valley of

abandoned cranberry bogs bounded by low hills; and finally it elbows through tidal marshes to Paine's Creek, its mouth on Cape Cod Bay.

The initial facts about the migration are these: each year, close in time to the vernal equinox when the sun crosses the equator and day and night are of equal length, this member of the herring family begins to enter innumerable inlets and tidal estuaries down the length of the Atlantic coast from Newfoundland to the Carolinas..... the Alewife is an"anadromous" fish, meaning that like the salmon and the shad, but unlike its relative the sea herring, it grows in salt water, but leaves it as a three or four-year old adult, to spawn in fresh.

The Alewives, I learned, were due to come in from the Bay when the temperature of the brackish water that flowed into it was warmer than that of the salt water."

"Early in April, I finally saw my first Alewife of the season.... It is a surprisingly large fish, seen for the first time in a narrow stream. Its length may be anywhere between ten and thirteen inches, and it has a heavy look for those who are used to sunfish and minnows.

The earliest comers often appear to be larger in size. This suggests, at least, that they may be older and that they have spawned in that run before. The latest to come seem to be the smallest and therefore the youngest. Alewives, like the other fish seem to have a tendency to keep growing, though there may be a maximum size reached in their fifth or sixth year. The only conclusive way to tell their age is by microscopic examination of their scales, which reflect each spawning year and its physical changes."

"So the first of the tiny fish came down by the thousands during the first week in July. After that there was hardly a day until the middle of August when there were not at least a few to be seen in the brook. Gradually they grew larger, so that in August they were up to two inches on the average. The next big movement after an August lull began on September 6 and 7.

I noticed their absence during a number of cloudy and rainy days in September and their return when the sun shone... Beginning in October the next schools of fish coming down had increased in size, so that the average seemed to have gone up to about two-and-three-

quarters to three inches. This movement off and on, kept up until the end of the month. I saw one last group coming into the upper falls on November 16."

"If a run is to keep up over the years, there has to be an annual survival or "escapement" of somewhere between 3 and 7 per cent. Say a hundred million hatched, out of the original nine billion eggs. Five percent of that, or five million, have to reach salt water in order to assure a normal spawning migration in three or four years' time. From that figure, of course, you subtract the Alewife mortality during their years of growth in the sea."

PLANTS OF THE AREA

A botanist could probably identify from one to two hundred kinds of plants growing within the boundaries of the area. A majority of these would be seed plants, but almost as many would be mosses, fungi (including lichens), and algae. Of this number, nineteen are sufficiently important, conspicuous, or interesting to be described here.

1. **Plants growing in the water.** Three flowering plants grow in the pool immediately about the mill.

Common Cat-tail (Typha latifolia). In marshes and shallow water. This species favors acid or neutral waters; another species, **Narrow-leaved Cat-tail,** favors limy or alkaline waters. Neither will grow in water more than faintly brackish.

Buttonbush (Cephalanthus Occidentalis). In swamps, on pond borders and stream margins. A shrub with leaves in pairs, threes, or occasionally fours. The stems are swollen and spongy at and below the water line. The flowers occur in spherical clusters on long stalks and the fruit clusters, also spherical, hang on into the winter and give the common name to the plant.

Eelgrass (Vallisneria Americana). This does not appear here every year. In quiet water, up to 4 or 5 feet in depth. The plants grow rooted in the mud of the bottom, with long, narrow leaves, up to 4 or 5 feet in length, submerged or with only their tips floating. Flowers, also on long stalks, float on the surface at pollination time. After pollination the flower-stalks coil up spirally and draw the

flowers under water, where the fruits ripen. This is not the eelgrass of the sea shore; that is Zosteria marina.

2. **Vines.** Three trailing or climbing plants are conspicuous at several places in the park.

Poison Ivy (Rhus radicans). On stone walls, dry banks, and attached by aerial roots to the trunks of trees. This is so well known that no description is given here. Watch out for it if you are susceptible to poisoning by it. The even more poisonous **Poison Sumac** (Rhus Vernix), a handsome shrub with smooth gray bark, occurs in many of the swamps of the Cape.

Japanese Honeysuckle (Lonicera Japonica). Covering the ground and climbing over shrubs and trees in moist places. Leaves opposite, in pairs, on the rather thin wiry vine. Flowers white to yellow, very fragrant. Gray's Manual of Botany says of this plant: "a most pernicious and dangerous weed, overwhelming and strangling the native flora, and most difficult to eradicate".

Common Greenbrier (Smilax rotundifolia). In most thickets and woods, seldom in the open. The common name is sufficient description. Gray's Manual calls it "an obnoxious pest".

Herbs Two of the herbaceous plants in the park are of interest.

Celandine (Chelidonium majus). In rich, damp soil. This is a plant with lobed or compound leaves, small yellow flowers, brittle stems, and yellowish juice. It is a native of Europe, naturalized and very much at home here.

Soapwort or Bouncing-Bet (Saponaria officinalis). Along roadsides and in open places. The juice has a soapy feel and can be used as a substitute for soap, and it is reported that it was originally introduced from Europe for this purpose. It is now naturalized throughout the eastern United States.

4. **Shrubs and small trees.** Three of these are of interest.

Sweet Pepperbush or White Alder. (Clethra alnifolia). In swamps and damp thickets. One of these bushes grows at the edge of Lower Mill Pond, just east of the top section of the fish ladder. It can be recognized by the erect, tapering racemes (clusters) of fragrant white flowers in the summer, and by the clusters of dry fruits in the same arrangement in the fall and winter.

Smooth Sumac (Rhus glabra). In dry places. One grows on the west side of the brook not far from the lower footbridge. It is very

much like the common **Staghorn Sumac**, but the small branches are smooth, not hairy, and the berries are a lighter red.

Tree-of-Heaven (Ailanthus altissima). Most people are familiar with this rapidly growing tree with large compound leaves, flowers of unpleasant odor, and thick twigs, but may not know its habit of propagating by shoots sent up by the roots. Young shoots of this sort form a young thicket on the bank around the flag pole on the north side of the road.

5. **Lawn weeds.** Two conspicuous weeds occur in the mowed part of the area. These are plants from Europe which have established themselves here.

Cypress Spurge (Euphorbia Cyparissias). This plant with acrid milky juice and yellow flowers spreads by underground rootstocks as well as by seeds. It is now widely distributed on the Cape.

Bulbous Buttercup (Ranunculus bulbosus). This has ternately compound or 3-parted leaves and yellow flowers, like most of the other buttercups, but it has a peculiarity of stem structure. The base of the stem is a bulbous structure, sometimes an inch in diameter, called a corm. This stores abundant food (starch) and accounts in large measure for the plant's success as a weed.

6. **Ferns.** Four kinds of ferns grow in the area, and others are being planted.

Rock-Polypody (Polypodium virginianum). Commonly rooted in the crevies of stone walls, and in similar situations. The leaf is simple and lobed. The "fruit-dots" on the lower surface of the leaf are round and large.

Ebony-Spleenwort (Asplenium platyneuron). On dry banks usually. The leaves are once compound, erect, and slender; the leafstalk is brown to black. The "fruit-dots" are elongated.

Lady-Fern (Athyrium Filix-Femina). On moist banks, sometimes rooted in crevices in moist places. The leaves are large and doubly compound, the leaf-stalks are usually green, and the "fruit-dots" are elliptical or curved.

Sensitive Fern (Onoclea sensibilis). In wet places only. This fern has two kinds of leaves. The sterile leaf is large, simple, lobed, and green, and bears no "fruit-dots". The fertile leaf is smaller, and once compound. The divisions of the fertile leaf which contain the "fruit-dots" look like small pods. The fertile leaf is green at first and becomes brown or black as it gets older.

7. **Fungi.** One fungus is very much in evidence in the area.

Black-Knot Fungus. (Dibotryon morbesum). This fungus infects the young twigs of all species of plum and cherry, and by the abnormal growth of the twig that results produces the deformed, swollen structures called "black knots". Common on wild cherry, wild plum and beach plum.

8. **Lichens.** One lichen is conspicuous on rocks.

Yellow Seashore Lichen (Teloschistes parietinus). On the wall below the road, and on the well curb near the lower footbridge. The name is sufficient to identify it.

Many other lichens are to be found on the trees and rocks of the park, and on the dry ground of the hill north of the road and west of the brook.

L. C. Petry

SUMMER BIRDS IN THE AREA

A list of birds which may nest in the general vicinity of the Old Mill in Brewster and the valley of Stoney Brook and are most likely to be seen there during the summer months: (This does not include birds like the American Egret, which have occasionally been seen down the valley, or those Warblers which pass through during migration. Herring Gulls nest on the Cape, though not in the vicinity of Stoney Brook, but they are included because they are commonly seen in the area. The Common Tern is also included for this reason.)

Green Heron
Black-crowned Night Heron
Mallard
Common Black Duck
Sharp-shinned Hawk
Red-tailed Hawk
Marsh Hawk
Sparrow Hawk
Bob-white
Woodcock
Herring Gull
Great Black-backed Gull
Common Tern
Mourning Dove
Black-billed Cuckoo
Great Horned Owl
Whip-poor-will
Chimney Swift
Pine Warbler
Praire Warbler
Northern Yellow-throat
American Redstart
English Sparrow
Red-wing
Baltimore Oriole
Ruby-throated Hummingbird
Belted Kingfisher
Flicker
Downy Woodpecker
Kingbird
Wood Peewee
Tree Swallow
Barn Swallow
Blue Jay
Eastern Crow
Black-capped Chickadee
Catbird
Brown Thrasher
Robin
Hermit Thrush
Starling
Red-eyed Vireo
Yellow Warbler
Bronzed Grackle
Cowbird
Red-eyed Towhee
Savannah Sparrow
Vesper Sparrow
Chipping Sparrow
Song Sparrow

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